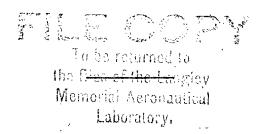NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS.

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COMMERCIAL AIRCRAFT IN WAR.

By Edward P. Warner,
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The possibility of using commercial airplanes and airships for military purposes has been argued at length in the last three years. The whole future of German aeronautics, in particular, hinges on the definition of commercial aircraft which is adopted and enforced by the Allies under the Treaty of Versailles. The aerial policies of the various governments also are largely controlled by the potentialities of commercial aircraft in war, as one of the reasons for encouraging commercial flying is the desire to build up a strong and efficient reserve of aircraft against a time of national need.

Another illustration of the importance of the relation between commercial and military flying appeared in the work of the recent Washington Conference, where the task of regulating the construction and maintenance of military aircraft was abandoned as hopeless because of the difficulty of drawing a line of demarcation between aircraft which are military and aircraft intended to follow only paths of peace.

Convertible Planes First Idea.

The signing of the armistice and even the end of the subsequent proceedings at Versailles found aeronautical engineers so imbued with the ideas of military design that the first commercial machines naturally bore strong evidence of their relation-

* Taken from "Christain Science Monitor".

ship to the war-time product. It was the universal idea when at-tempts at flying commerce first began that it would be carried out with aircraft at least readily convertible to military ends, and that impression can be traced in the phrases of the first French subsidy law, where great stress was laid on the production of commercial airplanes able to fly for long distances without stop, capable of maintaining a high speed, and easily convertible for bombing or observation purposes. The terms under which the subsidy was granted offered the strongest inducement to designers to continue war-time practices in their output.

Impression Dispelled.

The impression that commercial and military aircraft are in-terchangeable has been largely dispelled by two years of actual test, although certain of the subsidy laws still give some atten-tion to the feature of convertibility of use. The inducements for such convertibility are, however, much less accented than they were in the beginning. It is coming to be realized that the com-mercial airplane cannot be made closely similar to the military type without causing it to become a hopeless proposition economi-cally.

The true function of commercial aeronautics from the view-point of national safety is not to provide airplanes for military use, but to nourish an industry capable of turning quickly to the production of any sort of machine that may be required for any purpose in emergency. No government can keep air transport up to

the point where it will be able to support such an industry on the basis of a subsidy alone, and it is essential that governmental support be of a sort which will develop an industry ultimately able to stand on its own feet.

Not Interchangeable.

It is evident that there are some types of airplane which cannot be improvised from commercial craft. The pursuit machine has no parallel in commerce, and the armored attack airplane could hardly be made by conversion of anything else except in the most makeshift way, as armored vessels for blockade running were once produced by stacking bales of cotton along the rail and steel plates around the wheel house. Even bombing airplanes, however, cannot be made from any other type in a fully satisfactory manner. Of course, it is possible for the commercial airplane to carry bombs and for the pilot to drop them after a fashion, but the modern bombing airplane is so specialized in design and function that it could hardly be made interchangeable with any other sort of craft.

A Flying Battleship.

The modern military airplane is coming more and more into the class of a flying battleship, and it is impossible to produce an effective design by laying out the airplane structure first and then adding the armament as an afterthought. The armament and other equipment must be incorporated in a single unit.

Quite aside from the mounting of armament, too, an airplane suitable to be operated economically is not fast enough or maneuverable enough for serious military use. It is coming to be accepted by those making a serious study of commercial flying that a machine to be operated profitably must carry a paying load of at least five pounds a horsepower, and no military airplane carries as much load as this, aside from the fuel and crew. The normally heavy loading of the commercial machine also makes it incapable of reaching a high enough altitude to be secured against anti-aircraft fire. It would, of course, be practicable to use many parts of the commercial machine for reconstruction into military types. The point which should be emphasized, however, is that reconstruction would be required in all cases of true commercial airplanes.

Airship More Adaptable.

The airship presents a slightly different aspect. The gas bag is so much the largest part of the structure that it would not be difficult to adapt commercial craft to naval scouting work or bombing, particularly the former. The great virtue of the airship is its ability to remain in continuous service for long periods, staying at sea with a fleet for many days if necessary, and this advantage is not sacrificed by the addition of passenger cabins below the hull.

The position to be taken by the allied governments on commercial aircraft in Germany is not yet fully clear, but it appears

that precautions will be directed especially against airships, against airplanes capable of high speed, and against machines constructed with special strengthening which would facilitate the later addition of bomb racks below the body.